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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,385	07/02/2003	Kazushige Hotta	1324.68135	3186

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EXAMINER

HU, SHOUXIANG

ART UNIT PAPER NUMBER

2811

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/612,385

Applicant(s)

HOTTA ET AL.

Examiner

Shouxiang Hu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-15, 18-20, 22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16, 17, 21 and 24-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 1-15, 18-20, 22 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, in view of the previous office action and the 12-10-2004 amendment.

Accordingly, claims 1-26 are pending in this application; and claims 16, 17, 21 and 24-26 remain active in this Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the subject matters of "degrees of reflection of a laser light", but fails to clarify what is the definite relationship between the laser light and the final structure of the claimed invention, and on what stage and/or on what intermediate (or final) structure such laser light was applied for what purpose and/or with what wavelength along what direction. Otherwise, it leaves the claimed invention indefinite,

as a laser light for different purposes with different strengths and wavelengths applied along different directions at different stages may result in different effects on the final structure of the claimed invention.

For example, a laser light beam can be applied to a TFT-based device for a variety of different purposes (such as for: annealing; dopant activation; crystallization; backlighting; mask alignment, among others) that may require different wavelengths, different incident directions, and/or to be at different stages.

Furthermore, the claimed invention does not definitely define whether there are other layers between the laser and the recited low impurity and source/drain regions, as the rejected claims do not necessarily exclude them, which would further complicate the effect of the reflection when the laser light is on. For example, the degrees of reflection of a laser would change substantially when there are other layers of any types formed under and/or over the recited first and/or second insulation films. And, the degrees of reflection would approach to zero (even though it would meet the recited condition of equal degrees of reflection) when sufficient numbers and/or thicknesses of these "other" layers are formed.

All of these may result in different effects on the final structure of the claimed invention, as the claimed invention is directed to a device, i.e., a functionable final structure, and the recited laser may not be in the final structure. Thus, the claimed invention may not be definitely defined without further clarifying/defining the structure of the device, the feature(s) and/or effects of the recited laser in the claims, regardless whether or not the specification provides some features for a laser, given that the

disclosure does not exclude any other applications for a laser. And, it is further noted that, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17, 25 and 26, as being supported by the elected species and as being best understood in view of the claim objections, are rejected under 35 U.S.C. 102(b) as being anticipated by Takemura (US 5,719,065).

Takemura discloses an active matrix addressed display (AMAD) device having a thin film transistor (TFT) device with a first conductive type TFT (Fig. 5A; TFT1), comprising: a substrate underlying a semiconductor layer including source and drain regions (regions that are in direct contact with electrodes 503) and low density impurity regions (portions of the regions y or y' in the semiconductor layer that are directly under the gate insulator layer) with a channel region therebetween; a first insulation film (the gate insulator layer in TFT1 in Fig. 5A, at a position similar that of layer 104' in Fig. 3 but with a different width) formed on and covering all the surfaces of the channel region and the low density impurity regions (the identified portions of the regions y or y' in the

semiconductor layer that are directly under the gate insulator layer); a gate electrode; and a second insulation film (the insulating film that is in direct contact with the gate and at a position similar to that of the insulating film 108 in Figs. 3 and/or 8), which covers all of the surface of the first insulating film on the low density impurity regions (the identified portions of the regions y or y' in the semiconductor layer that are directly under the gate insulator layer), but not formed on the source/drain regions.

Regarding claims 17, 25 and 26, it is noted that all the recited features in these claims are naturally commonly comprised in an AMAD such as the one of Takemura (See Figs. 5 and 10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21 and 24, insofar as being in compliance with 35 U.S.C. 112 and as being supported by the elected species, are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemura.

The disclosure of Takemura is discussed as applied to claims 16, 17, 25 and 26 above.

Although Takemura does not expressly disclose that the second insulation layer can have such an absolute thickness of about 80nm (as shown in the elected species)

or an absolute thickness that may be implicated in these claims, it is noted that the thickness of such an insulation layer is well within the art-known range for such a layer; and it is an art-known result-oriented parameter of importance subject to routine experimentation and optimization.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device of Takemura with the second insulation layer having such an absolute thickness, so that a TFT-based device with optimized process conditions and/or with optimized performance would be obtained.

Furthermore, it is noted that any potentially implicated limitations associated with the application of the recited laser during the making of the recited device are hereby treated as process limitations as the claimed invention is directed to a device that has to be a functionable final structure and the recited laser may not be necessarily included in such a final structure. And, such process limitations would not carry patentable weight in this claim drawing to a structure, because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Response to Arguments

Applicant's arguments filed on June 5, 2006 have been fully considered, but are moot in view of the amendments made to claim 16.

Applicant's arguments filed on April 7, 2006 have also been fully considered, even though they are not formally entered. And, they are not found to be persuasive.

The structure shown in Fig. 5A in Takemura is readable on the claimed invention of claim 16, because: the portions in the regions y or y' in the semiconductor layer, as identified in the claim rejections, are readable as the recited low density impurity regions; the gate insulator layer shown in Fig. 5A (at least in TFT1) of Takemura is readable as the recited first insulating film as it is formed on and covering all the surfaces of the channel region and the low density impurity regions of the identified portions of the regions y or y' in the semiconductor layer; and, the capping layer directly covering and in contact with the gate electrode in TFT1 shown in Fig. 5A is readable as the recited second insulating film as it covers all of the surface of the first insulating film on the low density impurity regions of the identified portions of the regions y or y' in the semiconductor layer, but not on the source/drain regions.

Applicant's arguments appear to imply the Takemura does not meet the claimed invention because the gate insulation film (the gate insulator) therein does not cover the entire LLD regions of the thin film transistor of the instant invention. However, it is not what is defined in the rejected claims, which only require the recited semiconductor layer to have, rather than to consist of, the recited lower impurity regions and the other regions. And, a LDD region (the lower doped drain region) can be regarded as comprising a plurality of low impurity regions, including the regions that is readable on the identified portions of the regions y or y' in the semiconductor layer in Takemura; and the rejected claim fails to clearly and/or uniquely define the boundaries of the recited low impurity regions and their relationships with the other recited elements. Thus, the low impurity regions as recited in the rejected claims do not have to be interpreted as

the entire LDD or low impurity regions in the TFT of the instant invention as described in the specification. Applicant's is reminded that, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Responses to other arguments have been fully incorporated into the claim rejections set forth above in this office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

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Should you have questions on access to the Private PAIR system, contact the
Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
August 4, 2006

A handwritten signature in black ink, appearing to read 'S. Hu', with a long horizontal stroke extending to the right.

SHOUXIANG HU
PRIMARY EXAMINER